

WHAT IS CLAIMED IS:

1. A method for making an imaged flexographic printing sleeve,
the method comprising the steps of:

- 5 a) providing seam layout information representing an arrangement of
 one or more precursor sections on a sleeve substrate;
- b) automatically cutting a flexographic printing precursor into the
 one or more precursor sections using a controllable cutting
 device responsive to the seam layout information;
- 10 c) creating a flexographic printing sleeve by attaching the one or
 more precursor sections to the sleeve substrate; and
- d) imaging the flexographic printing sleeve.

2. The method of claim 1 comprising the further step of defining
the arrangement based on at least an image to be imaged on the
flexographic printing sleeve.

15 3. The method of claim 1 comprising the further steps of:

- a) displaying a preview of an image to be imaged on the flexographic
 printing sleeve;
- b) defining the arrangement based on the preview; and
- 20 c) deriving at least a part of the seam layout information from the
 arrangement.

4. The method of claim 1 comprising the further step of deriving
at least a part of the seam layout information according to an
algorithm.

5. The method of claim 4 comprising the further step of defining the arrangement based on at least an image to be imaged on the flexographic printing sleeve.

6. The method of claim 4 comprising the further steps of:

- 5 a) displaying a preview of an image to be imaged on the flexographic printing sleeve;
- b) defining the arrangement based on the preview; and
- c) deriving at least a part of the seam layout information from the arrangement.

10 7. The method of claim 4, wherein the algorithm minimizes flexographic printing precursor wastage.

8. The method of claim 1, wherein at least a part of the arrangement of the one or more precursor sections is in the form of one of:

- 15 a) lanes and
- b) a staircase shape.

9. The method of claim 1, wherein the step of imaging is performed digitally.

10. The method of claim 1, wherein the step of imaging is
20 performed by ablation.

11. The method of claim 10, wherein the ablation comprises ablating a UV opaque mask layer on the one or more precursor sections while the one or more precursor sections are attached to the sleeve substrate.

12. The method of claim 10, wherein the ablation comprises directly engraving the one or more precursor sections.

13. The method of claim 12, wherein the ablation is performed while the one or more precursor sections are attached to the sleeve
5 substrate.

14. The method of claim 1, wherein the step of attaching the one or more precursor sections to the sleeve substrate occurs on one of:

- a) a mounting device and
- b) a digital imaging device.

10 15. The method of claim 1 comprising the further step of determining registration information representing the arrangement.

16. The method of claim 15 comprising the further step of defining the arrangement from at least an image to be imaged on the flexographic printing sleeve.

15 17. The method of claim 1 comprising the further steps of:

- a) displaying a preview of an image to be imaged on the flexographic printing sleeve;
- b) defining the arrangement based on the preview; and
- c) determining registration information, at least part of the
20 registration information being determined from the arrangement.

18. The method of claim 17 comprising the further step of deriving from the arrangement at least a part of the seam layout information.

19. The method of claim 15, wherein at least a part of the registration information is determined according to a first algorithm.

20. The method of claim 19 comprising the further step of deriving at least a part of the seam layout information according to a second algorithm.

21. The method of claim 19 comprising the further step of defining the arrangement based on at least an image to be imaged on the flexographic printing sleeve.

22. The method of claim 19 comprising the further steps of:

- 10 a) displaying a preview of an image to be imaged on the flexographic printing sleeve;
- b) defining the arrangement based on the preview; and
- c) determining at least a part of the registration information from the arrangement.

15 23. The method of claim 22 comprising the further step of deriving from the arrangement at least a part of the seam layout information.

24. The method of claim 15 wherein the step of attaching the one or more precursor sections to the sleeve substrate occurs on one of:

- 20 a) a mounting device and
- b) a digital imaging device.

25. The method of claim 24 wherein the mounting device is responsive to the registration information.

26. The method of claim 25 wherein the registration information comprises positioning information for the attaching of the one or more precursor sections to the sleeve substrate.

27. The method of claim 26, wherein the positioning information
5 comprises registration marks.

28. The method of claim 26, wherein the positioning information comprises indexing information.

29. The method of claim 15 comprising the further step of
printing registration marks on the sleeve substrate prior to the
10 attaching the one or more precursor sections to the sleeve substrate,
the printing being done in accordance with the registration
information.

30. The method of claim 29 comprising the further step of
applying an adhesive layer to an outer surface of the sleeve substrate
15 prior to the printing.

31. The method of claim 29 comprising the further step of
applying an adhesive layer to an inner surface of the one or more
precursor sections prior to the attaching the one or more precursor
sections to the sleeve substrate.

20 32. The method of claim 1 comprising the further step of printing
on at least a part of the one or more precursor sections at least one
of reference indicia and reference characters.

33. The method of claim 32, wherein the further step of printing
is done in accordance with the seam layout information.

25 34. The method of claim 32, wherein at least one of reference
indicia and reference characters are printed on the at least a part of

the one or more precursor sections prior to the step of automatically cutting the flexographic printing precursor.

35. A controller capable of providing seam layout information to a controllable cutting device to cut an arrangement of one or more precursor sections for attaching to a sleeve substrate, the controller comprising at least one of:

- a) means capable of at least in part defining the arrangement by an interactive process, the interactive process comprising
 - i) displaying a preview of an image to be imaged on a flexographic printing sleeve; and
 - ii) receiving input from an operator by way of a user interface to define the arrangement based on the preview; and
- b) means capable of at least in part defining the arrangement according to an algorithm.

36. The controller of claim 35, comprising further means capable of providing registration information representing the arrangement.

37. A system for cutting precursor sections from a flexographic printing precursor, the system comprising

- a) a controllable cutting device responsive to seam layout information; and
- b) a controller capable of providing the seam layout information, the controller comprising at least one of

- (1) a means capable of at least in part defining an arrangement of one or more precursor sections by displaying a preview of an image to be imaged on a flexographic printing sleeve and accepting from an operator a definition of the arrangement based on the preview; and

- (2) a means capable of at least in part defining the arrangement in accordance with an algorithm.

38. The system of claim 37, the controller further comprising a means capable of providing registration information representing the arrangement.

39. The system of claim 37, wherein the controllable cutting device further comprises a marking means capable of printing at least one of reference indicia and reference characters.

40. A method for preparing and imaging a flexographic printing composite comprising:

- a) attaching one or more precursor elements to a support such that there is at least one seam;
- b) detecting the location of the at least one seam using an edge detection means; and
- c) forming an image on at a least part of the one or more precursor elements, the image located in aligned relation to the detected location of the at least one seam.

41. A method according to claim 40, wherein the one or more precursor elements are attached to the support in lanes.

42. A method according to claim 40, wherein the at least one seam is a staircase seam.

43. A method according to claim 40, wherein the support comprises an intermediate carrier capable of being engaged on an imaging drum.

44. A method according to claim 43, wherein the intermediate carrier is a sleeve substrate.

45. A method according to claim 40, wherein the at least one seam is aligned in a generally circumferential direction around an imaging drum.

46. A method according to claim 40, wherein the at least one seam
5 is aligned along a direction generally parallel to a rotational axis of an imaging drum.

47. A method according to claim 40, further comprising detecting the location of the at least one seam in a first position and in a second position, the second position spaced apart from the first
10 position.

48. A method according to claim 47, further comprising determining a tilt angle for the precursor element, the tilt angle calculated from the detected seam locations in the first and the second positions.

49. A method according to claim 40, wherein the detecting
15 comprises monitoring a reflection of an incident beam of light while scanning the beam of light over the at least one seam.

50. A method according to claim 40, further comprising receiving seam layout information indicating an approximate location for the at
20 least one seam.

51. A method according to claim 50, wherein the detecting comprises searching for the at least one seam in the indicated approximate location.

52. A method according to claim 40, wherein the forming the image
25 comprises receiving data defining the image and determining a start position for the image based on the location of the at least one seam.

53. A method according to claim 52, wherein the at least one seam is aligned in one of:

- i) a generally circumferential direction of an imaging drum; and
- ii) a direction generally parallel to a rotational axis of an imaging drum.

54. A method according to claim 40, wherein the forming an image on at least part of any one of the one or more precursor elements is based on focusing information from an autofocus system.

55. A method according to claim 54, wherein the forming an image in an area in proximity to the detected location of the at least one seam is not based on focusing information from the autofocus system.

56. A method according to claim 40, wherein the edge detection means comprises an autofocus system.

57. A method according to claim 40, wherein the detecting the location of the at least one seam comprises determining the location of at least one edge defining the at least one seam.

58. A method according to claim 40, wherein the location of the seam is calculated from the determined locations of two edges defining the at least one seam.

59. A method according to claim 40, wherein the forming an image is performed digitally.

60. A method according to claim 40, wherein the forming an image is performed by ablating a UV opaque mask layer.

61. A method according to claim 40, wherein the forming an image is performed by direct engraving at least part of the one or more precursor elements.

62. An apparatus for imaging a flexographic printing composite
5 comprising:

- a) a support for securing one or more precursor elements thereto such that there is at least one seam;
- b) an imaging head for exposing the one or more sections of flexographic printing precursor; and
- 10 c) an edge detection system for establishing the location of the seam.

63. An apparatus according to claim 62, wherein the support comprises an intermediate carrier capable of being engaged on an imaging drum.

15 64. An apparatus according to claim 62, wherein the edge detection system comprises a source for directing a beam of light towards the precursor and a sensor for monitoring the reflection of the beam of light from the precursor.

20 65. An apparatus according to claim 64, wherein the edge detection system comprises a position sensor for indicating the position of the reflected light beam with respect to the precursor.

66. An apparatus according to claim 59, wherein the edge detection system is mounted on the imaging head.

25 67. The apparatus of claim 66, wherein the edge detection system is an autofocus system capable of providing edge detection information.